REMARKS

The Examiner is thanked for the interview in October. In the interview, the cited reference Rosenberg was discussed, particularly, that Rosenberg does not teach or suggest a mouse with a horizontal wheel, and that the sections recited by the Examiner failed to make a link between the mouse of one embodiment with a remote control of another embodiment. No agreement was reached.

In the Office Action, the Examiner rejected claims 1-4, 8,11-17, 19-29, 31-34 and 37-43 under 35 USC 102 and claims 18 and 35 under 35 USC 103. These rejections are fully traversed below.

Claims 19, 29, 31, 32, 34, and 42 have been amended. Claims 39 and 40 have been cancelled. Claims 44-60 have been added. Thus, claims 1-4, 8, 11-29, 31-35, 37, 38 and 41-60 are pending in the application. Reconsideration of the application is respectfully requested based on the following remarks.

SUMMARY OF INVENTION

Most computer systems, as for example general purpose computers such as portable computers and desktop computers, receive input from a user via an input device such as a mouse. As is generally well known, the mouse allows a user to move an input pointer and to make selections in a graphical user interface (GUI). The mouse generally includes a trackball, which is located on the underside of the mouse and which rolls when the mouse moves thus translating the motion of the users hand into signals that the computer system can use. The movement of the trackball generally corresponds to the movement of the input pointer in the GUI. That is, by positioning the mouse on a desktop and moving it thereon, the user can move the input pointer in similar directions in the GUI. The mouse also includes one or two buttons, which are located on the top side of the mouse, and which have a click movement that actuates a GUI action such as selecting a file or executing instructions. Recently, a scroll wheel has been added to the mouse to give the user scrolling functionality. The scroll wheel saves time and steps, and allows a user to move through documents by simply rolling the wheel forward or backward-instead of clicking on the scroll bar displayed on the GUI.

Unfortunately, mice which utilize vertical scroll wheels such as these have several drawbacks. For example, the scroll wheel is limited in that it only provides a single finger position for accessing the scroll wheel (e.g., same position for left and right handed users). Furthermore, because only a small portion of the wheel can be used at any one time, the user cannot continuously turn the wheel. That is, the user must scroll, pick up a finger, scroll, pick up a finger, etc. This takes time and can be an annoyance to a user. In addition, because a portion of the wheel protrudes above the top surface of the mouse, inadvertent or accidental scrolling may occur when one of the two buttons is activated. That is, when the user goes to push the button or when the user switches from one button to the other, the user's finger may also engage the scroll wheel thus causing the wheel to turn when the button is depressed. Moreover, because the scroll wheel can only be manipulated in one direction, the use of the scroll wheel becomes counter intuitive when scrolling in a directions other than up and down, as for example horizontal directions that are side to side rather than up and down. Also, the protruding scroll wheel is not aesthetically pleasing and thus it presents industrial design difficulties.

In order to overcome these problems, the present invention provides a mouse with a very different actuator. As shown in Fig. 2 (which is reproduced below), the mouse includes a rotary dial. The rotary dial is arranged to rotate around an axis in order to implement a control function such as scrolling. Unlike the vertical scroll wheel described above, however, the rotary dial is configured to sit substantially horizontally and generally coplanar with the top surface of the mouse. In many cases, it follows the contour of the mouse housing.

This configuration provides many benefits over the traditional vertical scroll wheel. For one, the dial is more accessible to the user, i.e., the dial provides a large surface for manipulation thereof. In addition, the face of the dial is completely exposed to the user and therefore the dial can be continuously rotated through 360 degrees of rotation without stopping. Furthermore, the dial can be rotated tangentially from all sides thus giving it more range of finger positions than that of a traditional vertical scroll wheel. For example, a left handed user may choose to use one portion of the dial while a right handed user may choose to use another portion of the dial. In essence, this produces a more ergonomic mouse design. Further still, the dial does not protrude out of the mouse thus reducing the amount of accidental scrolling while making the mouse more aesthetically pleasing. As mentioned above, the horizontally positioned dial typically follows the contour of the mouse housing making it appear as if it were a portion of the mouse housing. Further still, the rotary dial provides a more intuitive way to scroll. For example, the user can

manipulate the dial side to side for horizontal scrolling and the user can manipulate the disc backwards and forwards for vertical scrolling. Moreover, because the motion of the dial is orthogonal to the direction of clicking (button press), the user can press on the dial without having it rotate.

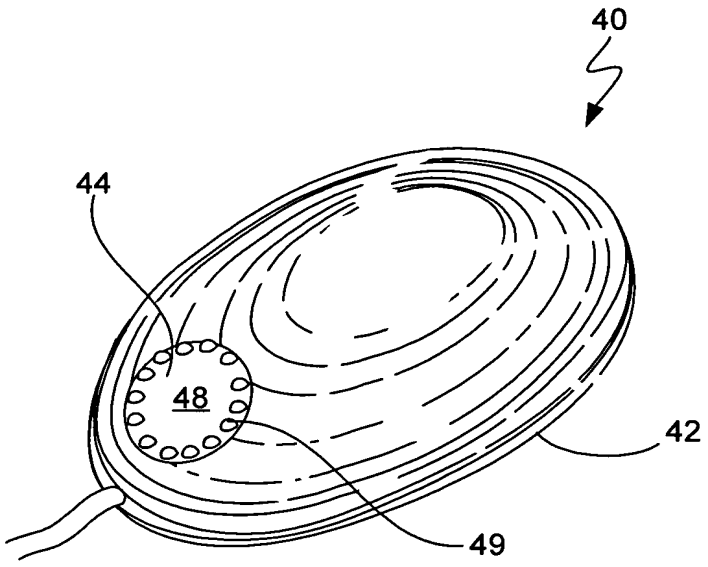


FIG. 2

This rotary dial works particularly well on mice with a unibody design. As shown in Fig. 5 (which is reproduced below), the unibody mouse is a mouse that includes a top housing member that moves relative to a bottom housing member so as to produce clicking actions for implementing one or more button functions. That is, the mouse body serves as the button thereby eliminating the need for external mechanical buttons. Because of this, the large amount of real estate required by the rotary dial is not a problem. There are no mechanical buttons and therefore rotary dial can take up a substantial portion of the front of the mouse. In contrast, in traditional mice, there is no place to place a rotary dial since the front of the mouse is reserved for mechanical buttons. Placing a rotary dial on these mice would drastically reduce the size of the buttons making the mouse hard to use. When using a unibody mouse, no such trade off is realized since it is the entire top surface of the mouse including the rotary wheel that activates the button functions. That is, the rotary dial moves with the mouse housing during the clicking action and therefore it has no impact on the button real estate. In fact, in this configuration, the rotary dial can be pressed to produce the clicking action without causing the rotary dial to rotate.

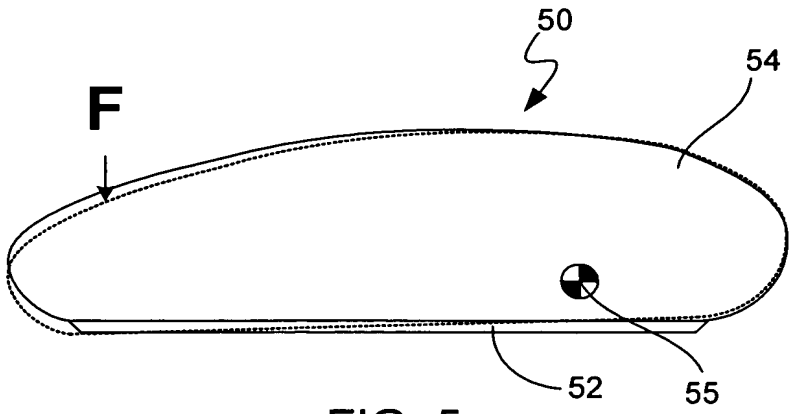


FIG. 5

THE PRIOR ART

Rosenberg is directed to force feedback and how its applied to various wheels or knobs, in particular, applying a force to a wheel or knob in response to a user action. The force provides a physical sensation to the user manipulating the wheel or knob. *Rosenberg* describes several examples of well known devices that have wheels or knobs with which his force feedback system can be used. By way of example, *Rosenberg* describes mice with vertical scroll wheels, remote controls with knobs, amplifiers with knobs, joysticks with a finger wheel, stereo systems with control knobs, auto temperature control systems with control knobs, navigation systems with control knobs, etc. Of particular relevance are the mice having a vertical scroll wheel and remote controls having a knob as the Examiner has relied on these to make a rejection.

As discussed on page 10, *Rosenberg* discloses a mouse 12 including buttons 15 and a mouse wheel 16. This mouse is similar to the mouse described in the background of the present invention since it includes both mechanical buttons and a vertical scroll wheel disposed between the mechanical buttons. As shown in Fig. 1 (which is reproduced below), the wheel 16 partially protrudes from an aperture in the housing of the mouse and rotates about an axis oriented in the illustrated x-direction.

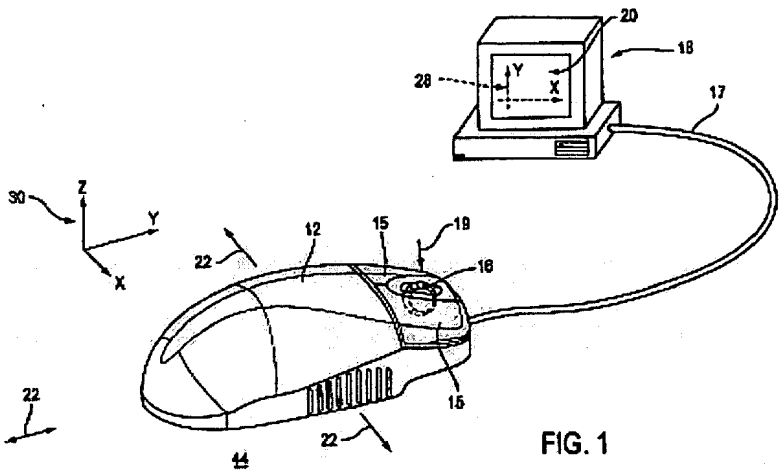
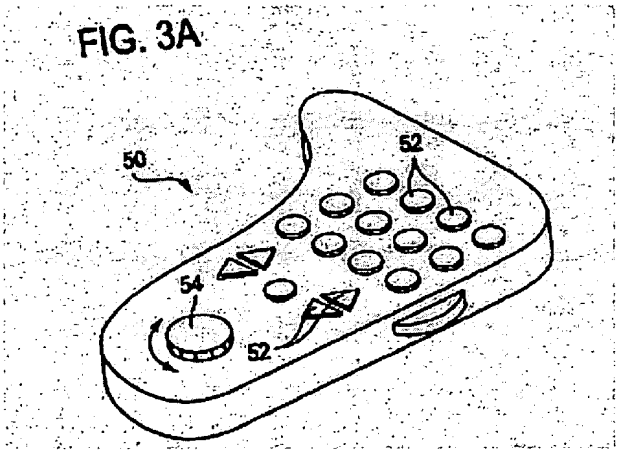


FIG. 1

As discussed on page 15, *Rosenberg* also discloses a handheld remote control device 50 including a control knob 54. The control knob 54 is oriented with an axis of rotation approximately perpendicular to the surface of the remote control. Fig. 3A, which illustrates the remote control device and the control knob are shown below.

FIG. 3A



Since neither of these devices reads on a mouse having a rotary dial, the Examiner found passages in *Rosenberg* that appear only to the Examiner (not to the Applicant) to teach a combination of the mouse and the knob of the remote control. This combination is being used to reject all of the claims.

The Examiner has continuously maintained this combination, and stated that he disagrees with the Applicants argument that *Rosenberg* makes no mention to placing a knob 54 on the mouse 12 because Rosenberg teaches that the knob 54 can be used alternately in the mouse,

remote control, etc. In support of this, the Examiner referenced page 16, lines 1-4 and page 20, line 37-page 21, line 2, which are reproduced below:

> Remote control 50 also includes a control knob 54 (which is also considered a "wheel" as referenced herein). Knob 54 can be oriented with an axis or rotation approximately perpendicular to the surface of the device 50 as shown in Fig. 3a. Alternatively, the knob 54 can be oriented similarly to the mouse wheel 16 with the axis of rotation approximately parallel to the device surface [page 16, lines 1-4]

> User object 32 is preferably a mouse but can alternatively be a joystick, remote control, or other device or article as described above [page 20, line 37-page 21, line 2]

The applicant respectfully disagrees with the Examiners position. While *Rosenberg* may state that the control knob 54 can be oriented similarly to the mouse wheel 16 [page 16, lines 1-4], he does not teach or suggest a mouse wheel 16 that can be oriented similarly to the control knob 54. That is, *Rosenberg* does not disclose, show or suggest a mouse wheel that is oriented with an axis of rotation approximately perpendicular to the surface of the mouse housing. The most that can be said is that wheel 16 is provided in a Y-orientation and rotates about an axis oriented in the x-direction as shown in Fig. 1, or that the wheel is provided in an x-orientation that rotates about a Y axis [see page 10, lines 30-33]. *Rosenberg* simply provides no motivation to use such a knob on a mouse and therefore the rejection should be withdrawn.

Furthermore, on page 16 *Rosenberg* lists several devices where the knob can be alternatively used, and in this list he fails to mention a mouse. See for example lines 30 and 31, which are reproduced below. This omission further emphasizes that *Rosenberg* did not contemplate a mouse with a rotary dial as taught in the present invention.

> "Knob 54 can similarly be provided directly on a radio, tuner, amplifier or other electronic device rather than on remote control 50."

It's the Applicants belief that the Examiner has used hindsight reconstruction of *Rosenberg* with the Applicants own disclosure as a blueprint to recreate the invention from indirect teachings and links in *Rosenberg*. If the Examiner did not have the Applicants invention in front of him, there is no way that he (or anyone skilled in the art) would have come up with the claimed invention from the teachings in *Rosenberg*. The links relied upon by the Examiner

are just too obscure. In fact, because *Rosenberg* teaches a mouse with mechanical buttons, one skilled in the art would not be motivated to place the knob on the mouse since the knob would take up too much real estate in the area where the buttons need to go. Because the vertical scroll wheel is vertical it can be placed between the buttons so that the area of the buttons can be maximized. A horizontal wheel would take up too much space thereby eliminating the buttons or making them too small for practical use. This would be enough to prevent anyone from making a link between the knob and the mouse as did the Examiner

Claim Rejections – 35 USC 102 and 103

Claims 1-4, 8, 11-17, 19-29, 31-34 and 37-43 have been rejected under 35 U.S.C. 102(b) as being anticipated by *Rosenberg* et al (WO 99/49443).

Claim 18 has been rejected under 35 U.S.C. 103(a) as being unpatentable over *Rosenberg* in view of *McLoone* et al (US 2002/0158844).

Claim 35 has been rejected under 35 U.S.C. 103(a) as being unpatentable over *Rosenberg* in view of *Lin* (US 2002/0154090).

Claim 1

In contrast to *Rosenberg,* claim 1 (and its dependents) specifically requires, "...a rotary dial positioned relative to an external surface of the mouse housing...the rotary dial rotating within a plane that is substantially parallel to the external surface of the mouse housing..." While *Rosenberg* may disclose a mouse 12 having a mouse wheel 16, *Rosenberg* fails to teach or suggest a mouse wheel 16 that rotates in a plane substantially parallel to the surface of the mouse 12. In *Rosenberg*, the mouse wheel 16 intersects the surface of the mouse 12 rather than being parallel to the surface of the mouse 12. *Rosenberg* states, "...Typically, wheel 16 is provided in a Y-orientation and rotates about an axis oriented in the X-direction as shown in Figure 1, where the wheel controls vertical (Y-direction) motion of a graphical object displayed by the host 18. In other embodiments, a wheel can be provided in an X-orientation that rotates about the Y-axis...(Page 10, lines 30-33)." In both of these configurations the mouse wheel 16 cuts through the plane of the mouse. With regards to knob 54, no mention is made to placing knob 54 on the mouse 12. Rather, the knob 54 is placed on a remote control 50 or gamepad controller 60. Neither of these devices can be considered a mouse. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Rosenberg,* claim 1 (and its dependents) specifically requires, "...the rotary dial having an engageable face for allowing a user to facilitate rotation of the rotary dial, the engageable face being completely exposed to the user ..." In *Rosenberg*, a portion of the mouse wheel 16 is always positioned within the mouse 12 and therefore its not completely

exposed to the user. See for example, Fig. 1, which shows the non exposed portions of mouse wheel 16 using hidden lines. With regards to knob 54, *Rosenberg* offers no suggestion or motivation to place it on the mouse 12. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Again, it should be reiterated that while *Rosenberg* may disclose a mouse with a vertical scroll wheel and a remote control with a knob, he fails to teach or suggest a mouse with a knob. The recitation presented by the Examiner does not provide a link for one skilled in the art to go in the claimed direction. *Rosenberg* simply does not teach a mouse with a knob and there is no motivation to reconstruct the *Rosenberg* mouse.

Claim 12

The rejection to claim 12 (and its dependents) should be withdrawn for similar reasons as above. *Rosenberg* fails to teach or suggest, "...a disk coupled to the mouse housing...the disk having a touchable surface for rotating the disk about an axis, the touchable surface being completely accessible to a finger of the user such that the disk can be continuously rotated by the simple swirling motion of the finger," as required by claim 12. Again, user actuated portions of the mouse wheel 16 are disposed within the mouse 12 at all times thus making them inaccessible to the users finger, i.e., portions of the mouse wheel 16 are hidden beneath the mouse 12. Furthermore, *Rosenberg* does not show or describe a mouse with a knob 54, and even if he did he does not provide any support as to how it is configured in relation to the mouse. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 20

Also in contrast to *Rosenberg*, claim 20 specifically requires, "...a disk positioned relative to an external surface of the mouse housing, the disk being rotatably coupled to the mouse housing about an axis that is normal to the external surface of the mouse housing, the disk having a user input receiving surface for facilitating movements thereof about the axis..." While *Rosenberg* may disclose a mouse 12 having a mouse wheel 16 that rotates around an axis, *Rosenberg* fails to teach or suggest a mouse wheel 16 that rotates around an axis that is normal to the surface of the mouse 12 where it is positioned relative to the mouse. In *Rosenberg*, the wheel axis is parallel to the surface of the mouse. With regards to knob 54, no mention is made to

placing knob 54 on the mouse 12 nor is there a need to do so in view of the buttons employed in the *Rosenberg* mouse. Rather, the knob 54 is placed on a remote control 50 or gamepad controller 60. Neither of these devices can be considered a mouse and again *Rosenberg* provides no support for placing the knob on the mouse. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Again, it should be emphasized that the recitations presented by the Examiner are very weak and are only relevant when given the present invention for hindsight reconstruction, i.e., the present invention gives the Examiner a blueprint to reconstruct the invention out of isolated teachings in *Rosenberg*. If not given the present invention, the Examiner and those skilled in the art would never have come up with the claimed invention.

Although the rejections to the dependent claims should be withdrawn for at least the reasons as above, it should be noted that they offer additional language that is unsupported by the art.

Claim 8

In contrast to *Rosenberg*, claim 8 specifically requires, "wherein the engageable face is substantially parallel to the external surface of the housing." Again Rosenberg does not teach or suggest a mouse with a knob, and even if he did he does not provide any information as to the configuration of the knob on the mouse. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 18

Mcloone does not overcome the deficiencies of *Rosenberg*. Neither reference teaches or suggests, "...a disk coupled to the mouse housing...the disk having a touchable surface for rotating the disk about an axis, the touchable surface being completely accessible to a finger of the user such that the disk can be continuously rotated by the simple swirling motion of the finger," as required by claim 12 from which claim 18 depends. As shown in *Mcloone*, a portion of the scroll wheel 30 is housed within the housing 61 of the mouse 60 and thus the scroll wheel 30 is not completely accessible to a user's finger.

In addition, neither reference teaches or suggests, "...wherein the rotation of the disk causes the displayed data to move... the displayed data is moved vertically or horizontally...side to side manipulation of the disk corresponds to horizontal scrolling...forwards and backwards manipulation of the disk corresponds to vertical scrolling...," as required by claim 18 and its intervening claims 16 and 17. In *Mcloone*, the user rotates and laterally moves the wheel 40 relative to the keyboard housing 51 to produce vertical and lateral scrolling (Page 3, paragraph 36). Lateral movement of the wheel 40 according to the *Mcloone* includes both linear (i.e., axi-lateral) movement of the wheel 40 relative to the housing 51 and tilting or pivoting the wheel 40 in a lateral direction (Page 4, paragraph 37). Lateral movement of the wheel is not disk rotation and therefore the rejection is unsupported by the art and should be withdrawn.

Claim 19 and 32

In contrast to *Rosenberg*, claims 19 and 32 specifically require "...the mouse housing serving as a button, the mouse housing, providing a clicking action for performing an action on a display screen..." *Rosenberg* does not teach or suggest a unibody mouse where the mouse housing serves as a button and that provides a clicking action. The most that can be said is that the mouse 12 includes buttons 15. These buttons however are mechanical buttons that are separate from the mouse housing. Furthermore, the mouse housing remains fixed during use of the mouse and therefore does not provide a clicking action. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 21

In contrast to *Rosenberg*, claim 21 specifically requires, "wherein a substantial portion of the user input receiving surface is exposed outside of the mouse housing." In *Rosenberg*, a larger portion of the scroll wheel is contained inside the mouse housing. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 22

In contrast to *Rosenberg*, claim 22 specifically requires, "wherein the user input receiving surface is completely accessible to a finger of a user." In *Rosenberg*, a larger portion of the scroll

wheel is contained inside the mouse housing. This portion is not accessible. Accordingly, the rejection is unsupported by the art and should be withdrawn

Claims 25 and 26

In contrast to Rosenberg, claim 25 specifically requires, "...wherein the external surface corresponds to the top of the mouse housing," and claim 26 specifically requires, "wherein the external surface corresponds to the side of the mouse." As continuously mentioned herein, Rosenberg does not teach a mouse with a knob. Even if he did, he is completely silent to how the knob is configured on the mouse. That is, he gives no indication of its orientation relative to the mouse housing. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 27

In contrast to *Rosenberg*, claim 27 specifically requires, "...wherein the user input receiving surface of the disk is substantially flush with a top external surface of the mouse housing." In *Rosenberg*, the scroll wheel 16 protrudes out of the mouse 12, and the knob 54 protrudes out of the remote control 50. See Figures 1 and 3A as well as the description on page 10, line 22 which states, "The wheel as shown only partially protrudes from an aperture 13 in the housing of the mouse 12..." With regards to knob 54, no mention is made to placing knob 54 on the mouse 12. Rather, the knob 54 is placed on a remote control 50 or gamepad controller 60. Even if the knob were placed on the mouse, Rosenberg only teaches the knob 54 protruding from the top surface of the remote control (see Figure 3 in Rosenberg). Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 29

In contrast to Rosenberg, claim 29 specifically requires, "...the tactile elements including bumps extending from the user input receiving surface or voids representing removed sections of the user input receiving surface." In Rosenberg, the ridges or bumps are placed on the edge of the wheel not on the side surfaces of the wheel. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 31

In contrast to Rosenberg, claim 31 specifically requires, "wherein the encoder is an optical encoder." In Rosenberg, it appears that an optical encoder is only used for the vertical scroll wheel (see page 21, line5). It doesn't appear as if an optical encoder is used in conjunction with the knob. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 33

In contrast to *Rosenberg*, claim 33 specifically requires, "wherein the clicking action is actuated in a direction normal to the mouse housing." Again, *Rosenberg* does not teach a unibody mouse and therefore he is completely silent to the functioning capabilities of the unibody mouse. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 34

In contrast to *Rosenberg*, claim 34 specifically requires, "wherein the mouse housing includes a base coupled to a body...the body being configured to pivot relative to the base in order to generate a clicking action." Again, *Rosenberg* does not teach a unibody mouse and therefore he is completely silent to the functioning capabilities of the unibody mouse. Rosenberg is completely silent to any portion of the mouse housing being capable of moving relative to another portion. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 35

Lin does not overcome the deficiencies of *Rosenberg*. Neither reference teaches or suggests "...a disk positioned relative to an external surface of the mouse housing, the disk being rotatably coupled to the mouse housing about an axis that is normal to the external surface of the mouse housing, the disk having a user input receiving surface for facilitating movements thereof about the axis..." as required by claim 20 from which claim 35 ultimately depends. See also arguments regarding claim 34 from which claim 35 depends. Furthermore, neither reference teaches or suggests, "...wherein the axis is obliquely positioned relative to the base," as required by claim 35. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 38

In contrast to *Rosenberg*, claim 38 specifically requires, "wherein the engageable face of the rotary dial is substantially flush with the external surface of the housing." *Rosenberg* does not mention a mouse with a knob, and even if he did he only shows a wheel or knob protruding from the surface of their respective housings. That is, *Rosenberg* fails to show any wheels or knobs that are flush (see Fig. 3 in Rosenberg). Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 41

In contrast to *Rosenberg*, claim 41 specifically requires, "wherein the disk is configured to sit in the mouse housing." *Rosenberg* only shows knob 54 outside of the housing of the remote control. It does not sit in the housing. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 42

In contrast to *Rosenberg*, claim 42 specifically requires, "wherein the top surface of the disk is level with the external surface of the mouse housing." Again, *Rosenberg* only shows a knob 54 that protrudes away from the surface of the housing of the remote control and therefore the top surface is not level with the surface of the housing. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 43

In contrast to Rosenberg, claim 43 specifically requires, "...wherein the disk is attached to a shaft that rotates within a shaft housing attached to the mouse housing and wherein the optical encoder includes a light source, a light sensor and an optical encoding disc having a plurality of slots separated by openings therebetween, the slots and openings breaking the beam of light coming from the light source so as to produce pulses of light that are picked up by the light sensor, the optical encoding disc being an integral part of the disk or a separate portion that is attached to the shaft." No such arrangement is taught in Rosenberg. The only evidence given by the Examiner is the reference to an optical encoder on page 21. This however provides no

details of the optical encoder. Thus, Rosenberg fails to teach or suggest the elements of claim 43. Accordingly, the rejection is unsupported by the art and should be withdrawn. The Examiner must present an optical encoder with this configuration in order to maintain the rejection.

SUMMARY

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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